

Date: 21.12.2011

**Subject:**      **Investigation Report on EC135 P2+ S/N 0583**

**Aircraft:**      EC135 P2+  
                 S/N: 583  
                 Reg: YR-CPC  
                 F/H: 1.378:45                      (Flight&Technical Log No.E 465 28.11.2011)  
                 LDG: 2601                      (Flight&Technical Log No.E 465 28.11.2011)

**Operator:**      C&I Corporation  
                 Industillor Street no.1  
                 601124 Onesti-Bacau  
                 Romania

**Equipment:**    CPDS; FCDS; AFCS; EURONAV IV

**ATC Flight number:**    0212032127    28.11.2011  
                                 OITUZ (DEP) to GHERGHITA (ARZ)

**Crew:**            PIC (R/H) Valentin Stoica,  
                 2 PAX seated rear L/H and R/H, looking in flight direction

**Log Discrepancy:** Flight & Technical Log No. E 0465

                 malfunction of autopilot,  
                 caution displayed "YAW SAS" and "ACTUATION",  
                 following by a brutal movement to the right  
                 with aggressive roll and descenting with diving

**Exceedance:**    - mast moment exceeding  
                         MM >66% 10,4 sec  
                         MM >78% 5,4 sec  
                 - engine overtorque  
                         - ENG I TRQ 127 % ca. 10 sec higher than 82%  
                         - ENG II TRQ 127 % ca. 10 sec higher than 82%  
                 - rotor over speed  
                         NR >130%

**Actions performed on aircraft for investigation (19.12. – 20.12.2011):**

- check of aircraft log books
- record of CPDS FLIGHT REPORT (pictures)
- record of CPDS MAINTENANCE REPORT (pictures)
- attempt to download flight path from EuroNav IV
- Autopilot Installation Acceptance Test Procedure performed according to L221V2101 X04 Issue C
- AFCS actuator tests (EHAs, SEMAs, TRIMs)
- visual inspection without removal of parts

**Findings (19.12. – 20.12.2011):**

- damage through contact of all blades control cuffs to Mast
- damage through contact of all blades control cuffs to Flex Beam
- pilot (R/H) front window has scratches inside
- pilot (R/H) front lower front window shoe marks inside
- wiper in L/H end position (was not in use)
- one weather radar mounting rivet head is broken
- A.TRIM button surface impressed on Autopilot Mode Selector (function not affected)
- autopilot tests without findings
- EURONAV IV system did not work at all, flight path download not feasible

**Pilot interview:** The pilot confirmed the basic information already received via ECROM and following aspects were clarified:

- pilot was flying hands-on the cyclic control due to possibility of further turbulence
- co-pilot seat vacant
- heading 187°
- initial movement: brutal yawing to the right
- followed by roll right over 90° bank and nose down
- entering into spinning motion ("like tail rotor drive shaft broken")
- autopilot upper modes decoupled via cyclic grip switch APMD DCPL
- flight to Baneasa airport performed with autopilot engaged (upper modes off)

**Actions required from Eurocopter Deutschland GmbH:**

- check of engine restart (ground idle only) to preserve main gear box and tail gear box according AMM (aircraft maintenance manual)
- engine I + II have to be preserved, removed and send for investigation/repair to manufacture P&W
- main rotor blades have to be removed and to be send for investigation/repair to the manufacture Eurocopter Deutschland
- EuroNav IV hard drive has to be send for "read out" to BFU Braunschweig / Germany
- inspections on airframe and dynamic components have to be performed according ETA (Eurocopter Technical Agreement) -05-105

**Peter Kalmutchi**

Aeronautical Inspector Engineering Investigator CIAS Romania

**Robert Schmelz**

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